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10/025,854	12/26/2001	Sang-Hyun Kim	SCH-0007	7556

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EXAMINER	
DAVIS, CYNTHIA L	
ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,854	KIM ET AL.	
	Examiner	Art Unit	
	Cynthia L Davis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3 and 5-21 is/are rejected.

7)☒ Claim(s) 4 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 07 January 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler.

Regarding claim 1, an ATM interface that communicates an ATM cell signal with the ATM network is disclosed in Doshi, figure 6, elements 50 and 76 (showing a connection between the atm and the vocoder)). A vocoder that communicates a voice signal with the PSTN by a channel is disclosed in Doshi, figure 6, element 76 (showing the DCS which contains the vocoder is connected to the PSTN via the legacy switch 10). A time division multiplex (TDM) bus that communicates a voice traffic signal between the ATM interface and the vocoder is missing from Doshi. However, Butler discloses in column 1, lines 60-62, that TDM buses are typically used in voice processing systems. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler in the system of Doshi. The motivation

would be to use a well known, commercially available component that is useful for voice processing (see Butler, column 1, line 60-column 2, line 7).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler in further view of Kramer and Baldwin.

Regarding claim 2, a central processing unit (CPU) that disassembles the ATM cell signal or reassembles disassembled cells in real time, according to the AAL2 Adaptation Layer 2 (AAL2) Common Part Sublayer (CPS) protocol and a Service Specific Convergence Sublayer (SSCS) protocol, and monitors and controls other function blocks is not specifically disclosed in Doshi. However, Doshi does disclose in figure 6, element 51, an ATM fabric switching controller, which would include a CPU. Further, Baldwin discloses in column 4, lines 23-25 and 37-42 that AAL2 normally includes SSCS and segmentation and reassembly, and other functions. It would have been obvious to one skilled in the art at the time of the invention to use AAL2 as is disclosed in Baldwin in the system of Doshi. The motivation would be to use a type of AAL that is well suited for packet telephony (Baldwin, column 4, line 13). A memory that stores the voice traffic signal generated by a process of the CPU based on the AAL2 CPS and SSCS protocols and stores the voice traffic signal transferred from the vocoder and a memory interface that accesses the memory for memory data input and output is missing from Doshi. However, Kramer discloses in column 3, lines 55-63 a memory used in conjunction with a vocoder to minimize jitter in an IP-PSTN gateway. It would have been obvious to one skilled in the art at the time of the invention to use the memory of Kramer in the system of Doshi. The motivation would be to minimize jitter

(Kramer, column 3, lines 53-55). A multiplex/demultiplex unit that demultiplexes the voice traffic signal received from the memory interface and outputs a demultiplexed result to the vocoder and multiplexes the voice traffic signal received from the vocoder and outputs a multiplexed result to the memory interface is disclosed in Doshi, figure 6, element 54 (the separator combiner acts as a mux/demux). A TDM interface that communicates the voice traffic signal with the vocoder over the TDM bus, synchronously with TDM timing is missing from Doshi. However, Butler discloses in column 1, lines 60-62, that TDM buses are typically used in voice processing systems. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler in the system of Doshi. The motivation would be to use a well known, commercially available component (see Butler, column 1, line 60-column 2, line 7).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler in further view of Kramer, Baldwin, and Victor.

Regarding claim 3, the multiplex/demultiplex unit is further adapted to convert first parallel signals received from the memory interface into a first serial signal, convert a second serial signal received from the TDM interface into second parallel signals, and output the converted second parallel signals to the memory interface is missing from Doshi. However, Victor discloses in column 15, lines 28-32, that the function of a mux/demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have the mux/demux

adapted to convert between serial and parallel signals. The motivation would be to have the mux/demux function as such components typically do.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler in further view of Kramer and Victor.

Regarding claim 5, a TDM interface connected to the TDM bus, the TDM interface synchronizes timings of the voice traffic signal with TDM timing is missing from Doshi. However, Butler discloses a TDM bus, which carries multiple calls in various synched channels, and has an interface, in column 1, lines 60-62. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler in the system of Doshi. The motivation would be to use a well known, commercially available component that is useful for voice processing (see Butler, column 1, line 60-column 2, line 7). Communicating with the ATM interface is disclosed in Doshi, figure 6, element 75. Converts a serial voice traffic signal into parallel voice traffic signals is missing from Doshi. However, Doshi does disclose in figure 6, element 54, a separator/combiner that acts as a mux/demux. Also, Victor discloses in column 15, lines 28-32, that the function of a mux/demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have the mux/demux adapted to convert between serial and parallel signals. The motivation would be to have the mux/demux function as such components typically do. A memory that stores the parallel voice traffic signals from the TDM interface and the voice signal from the PSTN; a memory interface that accesses the memory to read data from or write the data to the memory; and a CPU that periodically reads first voice data

stored in the memory, transfers the read first voice data to a digital signal processor (DSP), and stores second voice data transferred from the DSP in the memory is missing from Doshi. However, Kramer discloses in column 3, lines 55-63 a memory used in conjunction with a processor (to perform read/writes) and a vocoder to minimize jitter in an IP-PSTN gateway. It would have been obvious to one skilled in the art at the time of the invention to use the memory of Kramer in the system of Doshi. The motivation would be to minimize jitter (Kramer, column 3, lines 53-55).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler in further view of Kramer, Baldwin and Higgins.

Regarding claim 6, a most significant bit (MSB) comparator that latches a first MSB of data stored in the memory, compares the latched first MSB with a second MSB generated to read the stored data, and outputs the generated second MSB as a read MSB if the first and second MSBs are the same thereby preventing a contention from occurring between a read operation and a write operation of the memory is missing from Doshi. However, Higgins discloses in column 11, lines 1-11, a memory read-write system that alternates between read and write based on the MSBs in the memory. It would have been obvious to one skilled in the art at the time of the invention to use the memory access method of Higgins in the system of Doshi. The motivation would be to be able to read and update an old metric value and store a new one without destroying the old state metric (Higgins, column 11, lines 16-19).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Butler in further view of Higgins.

Regarding claim 7, a clock generator that provides a plurality of clock signals for frame synchronization and packet synchronization to the ATM interface and the vocoder is missing from Doshi. However, Butler discloses in column 12, lines 28-30, a master clock to control timing in a voice processing system. It would have been obvious to one skilled in the art at the time of the invention to use the clock of Butler in the invention of Doshi. The motivation would be to control the timing of the system.

8. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Schrodinger in view of Victor and Butler.

Regarding claim 8, demultiplexing a multiplexed stream of first parallel data units into multiple streams of second parallel data units and synchronizing the multiple streams of second parallel data units is disclosed in Schrodinger, column 2, lines 11-31 (the regeneration and propagation delay apparatuses process the initial n serial streams, which are transferred in parallel, into parallel data streams). Converting each of the multiple synchronized streams of second parallel data units into a stream of first serial data is missing from Schrodinger. However, Victor discloses in column 15, lines 28-32, that the function of a commonly used demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have a demux adapted to convert between serial and parallel signals. The motivation would be to use a common type of component to adapt the signals. Communicating each of the streams of first serial data through a time division multiplex (TDM) bus in an assigned time slot is missing from Schrodinger. However, Butler discloses in column 1, lines 60-62, that TDM buses are typically used in voice

processing systems. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler in the system of Schrodinger. The motivation would be to use a well known, commercially available component that is useful for voice processing (see Butler, column 1, line 60-column 2, line 7).

Regarding claim 9, generating a voice signal from each of the streams of first serial data received through the TDM bus; and transmitting each of the generated voice signals to a destination through a public switched telephone network is missing from Schrodinger. However, Butler discloses in column 3, lines 31-38, voice calls being routed to a PSTN via a gateway that includes a TDM bus. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler to route calls to a PSTN. The motivation would be to be able to route voice channels on data packet networks (see Butler, column 1, lines 35-54 for some advantages of routing voice over the internet).

Regarding claim 10, communicating each of multiple streams of second serial data through the TDM bus in an assigned time slot is missing from Schrodinger. However, Butler discloses in column 1, lines 60-62 a TDM bus for transporting multiple telephone channels. It would have been obvious to one skilled in the art at the time of the invention to use the TDM bus of Butler in the system of Schrodinger. The motivation would be to use a well known, commercially available component that is useful for voice processing (see Butler, column 1, line 60-column 2, line 7). Converting each of the multiple streams of second serial data units into a stream of third parallel data units; and multiplexing the multiple streams of third parallel data units into a

multiplexed stream of fourth parallel data units is missing from Schrodinger. However, Victor discloses in column 15, lines 28-32, that the function of a commonly used mux/demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have a mux/demux adapted to convert between serial and parallel signals. The motivation would be to use a common type of component.

9. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Schrodinger in view of Victor and Butler in further view of Doshi.

Regarding claim 11, encoding multiple voice signals, received through a public switched telephone network, into the corresponding multiple streams of second serial data is missing from Schrodinger. However, Doshi discloses in column 4, lines 8-26, a system that encodes PSTN calls into atm data streams. It would have been obvious to one skilled in the art at the time of the invention to use the system of Doshi with the invention of Schrodinger. The motivation would be to transmit calls over an ATM system.

Regarding claim 12, generating asynchronous transfer mode (ATM) packets from the multiplexed stream of fourth parallel data units; and transmitting the generated ATM packets through an ATM network is missing from Schrodinger. However, Doshi discloses in column 4, lines 8-26, a system that encodes PSTN calls into atm data streams. It would have been obvious to one skilled in the art at the time of the invention to use the system of Doshi with the invention of Schrodinger. The motivation would be to transmit calls over an ATM system.

10. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Schrodinger in view of Victor and Butler in further view of Higgins.

Regarding claim 13, comparing a first address bit corresponding to data stored in a memory to a second address bit generated for the purpose of reading the stored data; outputting the generated second address bit for use in a subsequent memory read operation if the first and second address bits have the same value, to prevent bus contention between a memory write operation and the memory read operation is missing from Schrodinger. However, Higgins discloses in column 11, lines 1-11, a memory read-write system that alternates between read and write based on the MSBs in the memory. It would have been obvious to one skilled in the art at the time of the invention to use the memory access method of Higgins in the system of Schrodinger. The motivation would be to be able to read and update an old metric value and store a new one without destroying the old state metric (Higgins, column 11, lines 16-19).

Regarding claim 14, toggling the value of the second address bit if the first and second address bits have different values; outputting the toggled second address bit for use in the subsequent memory read operation, to prevent bus contention between the memory read and write operations is missing from Schrodinger. However, Higgins discloses in column 11, lines 1-11, a memory read-write system that toggles an address bit. It would have been obvious to one skilled in the art at the time of the invention to use the memory access method of Higgins in the system of Schrodinger. The motivation would be to be able to read and update an old metric value and store a new one without destroying the old state metric (Higgins, column 11, lines 16-19).

11. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable Schrodinger in view of Kramer, Victor, Campanella, and Butler.

Regarding claim 15, a multiplexer/demultiplexer (demux) that demultiplexes a multiplexed stream of first parallel data units into multiple streams of second parallel data units is disclosed in Schrodinger, column 2, lines 11-31 (the regeneration and propagation delay apparatuses process the initial n serial streams, which are transferred in parallel, into parallel data streams). An aligner that aligns the multiple streams of second parallel data units is missing from Schrodinger. However, Campanella discloses in figure 6, element 150, and column 11, lines 24-29, performing time-alignment on demultiplexed streams of a TDM signal. It would have been obvious to one skilled in the art at the time of the invention to use the aligner of Campanella in the system of Schrodinger. The motivation would be to compensate for clock rate differences in the system (Campanella, column 11, lines 32-43). A time division multiplex (TDM) bus that communicates each of the streams of first serial data is missing from Schrodinger. This is disclosed in Butler, column 1, lines 60-62. It would have been obvious to one skilled in the art at the time of the invention to use a TDM bus in the system of Schrodinger. The motivation would be to use a TDM bus, which is typically used in voice processing systems. A parallel-to-serial converter that converts each of the multiple aligned streams of second parallel data units into a stream of first serial data; and a serial-to-parallel converter that receives each of the streams of first serial data from the TDM bus in an assigned time slot is missing from Schrodinger. However, Victor discloses in column 15, lines 28-32, that the function of a commonly

used mux/demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have a mux/demux adapted to convert between serial and parallel signals. The motivation would be to use a common type of component to adapt the signals.

Regarding claim 17, the serial-to-parallel converter communicates each of multiple streams of second serial data through the TDM bus in an assigned time slot is missing from Schrodinger. However, Butler discloses in column 1, lines 60-62, transmitting various channels of voice calls over a TDM bus. It would have been obvious to one skilled in the art at the time of the invention to use a TDM bus in the system of Schrodinger. The motivation would be to use a TDM bus, which is typically used in voice processing systems. The parallel-to-serial converter converts each of the multiple streams of second serial data units into a stream of third parallel data units; and the demux multiplexes the multiple streams of third parallel data units into a multiplexed stream of fourth parallel data units is missing from Schrodinger. However, Victor discloses in column 15, lines 28-32, that the function of a commonly used mux/demux is to convert between serial and parallel signals. It would have been obvious to one skilled in the art at the time of the invention to have a mux/demux adapted to convert between serial and parallel signals. The motivation would be to use a common type of component to adapt the signals.

12. Claims 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrodinger in view of Kramer, Victor, Campanella, and Butler in further view of Baldwin.

Regarding claim 16, multiple vocoders that each generate a voice signal from a separate one of the streams of first serial data received by the serial-to-parallel converter; and a public switched telephone network interface that transmits each of the generated voice signals to a destination are missing from Schrodinger. However, Baldwin discloses this in figure 4, elements 130 and 150 (showing vocoder groups connected to a PSTN). It would have been obvious to one skilled in the art to have vocoders generate voice signals to transfer onto the PSTN. The motivation would be to transfer the cells from atm to the pstn, as is done in Baldwin.

Regarding claim 18, multiple vocoders that encode multiple voice signals, received through the public switched telephone network interface, into the corresponding multiple streams of second serial data are missing from Schrodinger. However, Baldwin discloses this in figure 4, elements 130 and 150 (showing vocoder groups connected to a PSTN). It would have been obvious to one skilled in the art to have vocoders generate signals to transfer from the PSTN. The motivation would be to transfer the cells from the pstn to atm for fast transfer in the atm network, as is done in Baldwin.

Regarding claim 19, an asynchronous transfer mode (ATM) interface that generates ATM packets from the multiplexed stream of fourth parallel data units and transmits the generated ATM packets to an ATM network is missing from Schrodinger. However, Baldwin discloses in figure 4, element 130 and 100 cells being generated and transferred into an atm network. It would have been obvious to one skilled in the art to

have generate atm cells. The motivation would be to transfer the cells from the pstn to atm for fast transfer in the atm network, as is done in Baldwin.

13. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrodinger in view of Kramer, Victor, Campanella, and Butler in further view of Higgins.

Regarding claim 20, a memory that stores data and a comparator that compares a first address bit, corresponding to the data stored in the memory with a second address bit generated for the purpose of reading the stored data, wherein the comparator outputs the generated second address bit for use in a subsequent memory read operation if the first and second address bits have the same value, to prevent bus contention between a memory write operation and the memory read operation is missing from Schrodinger. However, Higgins discloses in column 11, lines 1-11, a memory read-write system that alternates between read and write based on the MSBs in the memory. It would have been obvious to one skilled in the art at the time of the invention to use the memory access method of Higgins in the system of Schrodinger. The motivation would be to be able to read and update an old metric value and store a new one without destroying the old state metric (Higgins, column 11, lines 16-19).

Regarding claim 21, the comparator toggles the value of the second address bit if the first and second address bits have different values; and outputs the toggled second address bit for use in the subsequent memory read operation, to prevent bus contention between the memory read and write operations is missing from Schrodinger. However, Higgins discloses in column 11, lines 1-11, a memory read-write system that toggles an

address bit. It would have been obvious to one skilled in the art at the time of the invention to use the memory access method of Higgins in the system of Schrodinger. The motivation would be to be able to read and update an old metric value and store a new one without destroying the old state metric (Higgins, column 11, lines 16-19).

Allowable Subject Matter

14. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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